

# IGCSE DA Biology 4437 4H

## Mark Scheme (Results)

### Summer 2008

IGCSE

# IGCSE DA Biology 4437 4H





Question Number	Correct Answer	Acceptable Answers	Reject	Mark
2 (b)	light / gravity;	sun / sunlight;	phototropism / geotropism	1 (1)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
2 (c)(i)	carbon dioxide + water; (or opposite) glucose + oxygen; (or opposite) Ignore light / chlorophyll	chemical symbols;;		2 (2)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
2 (c)(ii)	thin; large surface area; stomata; air spaces / spongy (mesophyll);		pores / guard cells	Max 2 (2)

(Total 9 marks)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
3	mouth / saliva; mechanical digestion / chewing / mastication / eq; amylase; ONCE Ignore carbohydrase (starch to) maltose;  pancreas / pancreatic juice / eq; small intestine / duodenum / ileum; starch/maltose to glucose; maltase;			Max 6 (6)

(Total 6 marks)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
4	vena cava; atrium / auricle; lung; valves; aorta; hepatic; glucose / sugar; glycogen;			8 (8)

(Total 8 marks)



Question Number	Correct Answer	Acceptable Answers	Reject	Mark
7 (a)(i)	Dd and Dd; DD, Dd, Dd, and dd; (any order)			2 (2)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
7 (a)(ii)	3:1 / 75:25 / 75% to 25% / 3 quarters to 1 quarter / eq;			1 (1)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
7 (a)(iii)	zero; both parents must be DD / dd parents are sterile / neither parent has d/recessive allele; ignore term gene			2 (2)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
7 (b)	bigger surface area to volume ratio; lack insulation/fat; lose (more) heat; maintain body temperature; respiration;			Max 2 (2)

(Total 7 marks)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
8 (a)	glucose / $C_6H_{12}O_6$ ; carbon dioxide/ $CO_2$ + ethanol/alcohol/ $C_2H_5OH$ ; ignore energy	chemical symbols		2 (2)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
8 (b)(i)	gene / DNA / allele (for enzyme); cut; restriction / endonuclease; plasmid / vector / gene gun / phage / virus; ligase; gene / DNA / allele <u>into yeast</u> ;			Max 4 (4)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
8 (b)(ii)	enzyme / amylase; digests starch / less starch / starch to sugar;			2 (2)

(Total 8 marks)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
9	bacteria / named bacteria; ammonia/ammonium (cpds) to nitrite/nitrate / nitrite to nitrate; protein / amino acids / growth;			(3)

(Total 3 marks)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
10 (a)	energy / insulation / cell membranes / neurones / growth / making new cells /eq;	keep warm / eq		1 (1)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
10 (b)	respiration / heat / excretion / egestion / movement / uneaten / indigestible;;			Max 2 (2)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
10 (c)	nitrates / mineral ion(s) / named mineral ion(s) / eq; growth of plants / algal bloom; <u>eutrophication</u> ; light blocked / less photosynthesis; death of organisms (plant/fish); bacteria / microorganisms / eq; oxygen depletion /eq; respiration;			Max 5 (5)

(Total 8 marks)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark												
11 (a)	<table border="1"> <thead> <tr> <th>Person</th> <th>BMI value</th> <th>Description of weight</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>(24.2)</td> <td>(normal weight)</td> </tr> <tr> <td>B</td> <td>29.6</td> <td>overweight</td> </tr> <tr> <td>C</td> <td>39.6;</td> <td>obese;</td> </tr> </tbody> </table>	Person	BMI value	Description of weight	A	(24.2)	(normal weight)	B	29.6	overweight	C	39.6;	obese;	TE for wrong BMI but correct description = 1		(2)
Person	BMI value	Description of weight														
A	(24.2)	(normal weight)														
B	29.6	overweight														
C	39.6;	obese;														

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
11 (b)	higher / greater / increase / eq;			1 (1)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
11 (c)(i)	more risk for men up to 28 / similar risk up to 28 / eq; more risk for women (than men) above 28; more risk for men and women above 28; more risk as BMI increases;	allow higher BMI/overweight as eq to 28		2 (2)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
11 (c)(ii)	<u>coronary</u> artery; fat/cholesterol blocks/deposits; (aerobic to) <u>anaerobic</u> ;  (less) oxygen; (less) glucose; less respiration / less energy / ATP; lactic acid; builds up / toxic / inhibit enzymes / eq;			Max 5 (5)

(Total 10 marks)



Question Number	Correct Answer	Acceptable Answers	Reject	Mark
12 (c)(i)	less pressure / flow speed; larger lumen / eq; closer to surface / easier to see / eq; thinner wall / easier to penetrate;	converse		Max 2  (2)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
12 (c)(ii)	diffusion; high conc. to low conc. / conc.gradient;			2  (2)

Question Number	Correct Answer	Acceptable Answers	Reject	Mark
12 (c)(iii)	urea; carbon dioxide; water;		toxins / hormones / glucose / lactic acid	Max 2  (2)

(Total 17 marks)

PAPER TOTAL 90 MARKS